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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,356	03/25/2004	Takashi Kasahara	C32-165325M/TBS	5448

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MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER	
MCCLOUD, RENATA D	
ART UNIT	PAPER NUMBER
2837	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/808,356	KASAHARA ET AL.	
	Examiner	Art Unit	
	Renata McCloud	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/1/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 11,13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erdman et al (US20030098660) in view of Hancock et al (US 5015903)

Claim 1: A fan motor comprising: a single-phase ecm (0123) including a stator (52) excited by applying an electric current to a coil to function as a single-phase magnetic pole (0083), and a rotor (54) which has a permanent magnet magnetized to a single phase and rotates as the magnetic pole of the stator (0070) changes; an impeller (20) which is rotated by a rotating shaft (18) of the rotor (54); and a drive circuit (Fig. 21) for controlling current to the coil, wherein the drive circuit applies pulse voltage to the coil and the coil constant is set so that a mean value of the current applied to the coil is low (0003, a low wattage). Erdman et al do not explicitly recite a single-phase stepping motor or a current of 10mA or smaller. Hancock et al teach that it is well known in the art that an ecm is commonly used in stepper motor applications (col. 1:15-36). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Erdman et al to use a stepping motor as taught by Hancock et al, and to have a current of 10 mA or smaller in order to drive the fan and since it has bee held that discovering an optimum value of a result effective variable involves only routine skill in the art (see MPEP 2144.05 (2)).

Claim 2: Erdman et al teach the drive circuit includes CMOS transistors (0102-0103.

Claim 3: Erdman et al teach a timepiece (0093, 0104;0107).

Claim 11: Erdman et al teach the drive circuit comprises a controller that sends drive signals to the CMOS transistors and applies a driving voltage having an alternating pulse waveforms to the coil (par. 0003,0093,0104,0107)

Claim 13: Erdman et al teach a plastic friction member (122, par. 0053) that couples the impeller (20) to the shaft (18).

3. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Erdman et al in view of Hancock et al as applied to claim 1 above, and further in view of Imagi et al (US5650697).

Claim 4: Erdman et al and Hancock et al teach the limitations of claim 1. Referring to claim 4, they do not teach a pulse frequency which is output from the drive circuit at a time of starting is set lower than the pulse frequency during a steady operation. Imagi et al teach a pulse frequency which is output from the drive circuit at a time of starting is set lower than the pulse frequency during a steady operation (fig. 41). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Erdman et al and Hancock et al to have a starting frequency lower than a steady state frequency as taught by Imagi et al in order to drive the fan.

4. Claims 5,9 rejected under 35 U.S.C. 103(a) as being unpatentable over Erdman et al in view of Hancock et al as applied to claim 1 above, and further in view of Chen (US6589018).

Claim 5: Erdman et al and Hancock et al teach the limitations of claim 1. Referring to claim 5, they do not teach a coupling mechanism which couples the impeller to the rotating shaft wherein the coupling mechanism couples the impeller slidably to the rotating shaft of the rotor

causes the rotating shaft to race with respect to the impeller at the time of starting the motor and causes the impeller to rotate by following the rotation of the rotating shaft by friction during the steady operation. Chen teaches a coupling mechanism which couples the impeller (Fig. 6:9) to the rotating shaft (34), wherein the coupling mechanism couples the impeller slidably to the rotating shaft of the rotor causes the rotating shaft to race with respect to the impeller at the time of starting the motor and causes the impeller to rotate by following the rotation of the rotating shaft by friction during steady operation (col. 3:35-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Erdman et al and Hancock et al to couple the impeller as taught by Chen in order to reduce assembly steps.

Claim 9: Erdman et al teach a front end of the shaft (18) has a spherical shape and is inserter in to the impeller (20)

5. Claims 6,10 rejected under 35 U.S.C. 103(a) as being unpatentable over Erdman et al in view of Hancock et al as applied to claim 1 above, and further in view of Bingler (US20030209343)

Claim 6: Erdman et al and Hancock et al teach the limitations of claim 1. Referring to claim 6, they do not teach a comprising a coupling mechanism which couples the impeller to the rotating shaft, wherein the coupling mechanism couples the impeller slidably to the rotating shaft; includes a permanent magnet for attracting the impeller so as to contact the impeller against the rotating shaft of the rotor with a predetermined holding-down force; causes the rotating shaft to race with respect to the impeller at the time of starting the motor and causes the impeller to rotate by following the rotation of the rotating shaft during the steady operation. Bingler teaches a coupling mechanism (fig. 5:9a) which couples the impeller (7) to the rotating

shaft (8a), wherein the coupling mechanism (9a) couples the impeller slidably to the rotating shaft (8a); includes a permanent magnet (9a) for attracting the impeller so as to contact the impeller against the rotating shaft with a predetermined holding-down force; causes the rotating shaft to race with respect to the impeller at the time of starting the motor and causes the impeller to rotate by following the rotation of the rotating shaft during the steady operation (0033). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Erdman et al and Hancock et al to couple the impeller as taught by Bingler in order to reduce the size of the fan.

Claim 10: Erdman et al teach the permanent magnet (54) is fixed with the rotating shaft (18) to an underside of the impeller (20). Bingler teaches the permanent magnet (9a) is fixed with the rotating shaft (8a) to an underside of the impeller (7).

6. Claims 6, 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Erdman et al in view of Hancock et al as applied to claim 1 above, and further in view of Faris (US4206719)

Claim 6: Erdman et al and Hancock et al teach the limitations of claim 1. Referring to claim 6, they do not teach a comprising a coupling mechanism which couples the impeller to the rotating shaft, wherein the coupling mechanism couples the impeller slidably to the rotating shaft; includes a permanent magnet for attracting the impeller so as to contact the impeller against the rotating shaft of the rotor with a predetermined holding-down force; causes the rotating shaft to race with respect to the impeller at the time of starting the motor and causes the impeller to rotate by following the rotation of the rotating shaft during the steady operation. Faris teaches a coupling mechanism (fig. 6:136) which couples the impeller (134) to the rotating shaft (106), wherein the coupling mechanism (136) couples the impeller (134) slidably to the rotating shaft (106); includes a permanent magnet (136) for attracting the impeller so as to contact the

impeller against the rotating shaft with a predetermined holding-down force; causes the rotating shaft to race with respect to the impeller at the time of starting the motor and causes the impeller to rotate by following the rotation of the rotating shaft during the steady operation (col. 5:55-6:37). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Erdman et al and Hancock et al to couple the impeller as taught by Faris in order to prevent electrical shock in the presence of moisture.

Claim 10: Erdman et al teach the permanent magnet (54) is fixed with the rotating shaft (18) to an underside of the impeller (20). Faris teaches the permanent magnet (136) is fixed with the rotating shaft (106) to an underside of the impeller (134).

7. Claims 7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erdman et al (US20030098660) in view of Hancock et al (US 5015903) as applied to claim 1 above and further in view of Matsui et al (WO0213357), translated by US 6900574.

Claim 7: Erdman et al and Hancock et al teach the limitations of claim 1. Referring to claim 7, they do not teach the stator comprises a pair of stator yokes that include thin magnetic boards. Takemoto et al teach a stepping motor having a stator, the stator comprises a pair of stator yokes (fig. 16:51,52) that include thin magnetic boards (col. 16:9-19). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Erdman et al and Hancock et al to have a stator as taught by Matsui et al in order to reduce noise.

Claim 8: Matsui et al teach the pair of stator yokes (51,52) comprise magnetically symmetrical L-shaped material (col. 16:20-29, 16:56-7:6)

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Erdman et al (US20030098660) in view of Hancock et al (US 5015903) as applied to claim 1 above and further in view of Moreira et al (US6051952)

Claim 12: Erdman et al and Hancock et al teach the limitations of claim 13. Referring to claim 14, they do not teach driving the motor at a constant rate. Moreira et al teach that it is well known in the art that single phase permanent magnet motors are driven at constant speed. (col. 1: 42-48) . It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Erdman et al and Hancock et al to drive the motor at constant speed as taught by Moreira et al in order to provide a small sized high efficiency motor.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Erdman et al (US20030098660) in view of Hancock et al (US 5015903) as applied to claim 13 above and further in view of Jorgensen (US 4962734).

Claim 14: Erdman et al and Hancock et al teach the limitations of claim 13. Referring to claim 14, they do not teach adjusting the friction force between the shaft and impeller by altering a contact of the friction member. Jorgensen teaches adjusting the friction force between the shaft and impeller by altering a contact of the friction member (col. 4:13-27 removing the seals). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Erdman et al and Hancock et al to adjust the friction as taught by Jorgensen in order to reduce airflow around the fan.

Response to Arguments

10. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., suppresses current consumption) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's arguments that the prior art doe not teach coupling the impeller slidably to the shaft, the examiner disagrees. Slidably, broadly means the ability to pass through. Faris shows that the shaft (106) passes through the impeller 134. Bingler teaches the coupler (9a) coupling the impeller (7) slidably to the shaft (8a), as in the impeller passes through the coupler (9a), the coupler coupled to the shaft. There is nothing in applicant's claim language that precludes the examiner from reading Faris as meeting the claimed limitations.]

In response to applicant's argument that Faris is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Faris teaches a fan.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 5:30 am - 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Renata McCloud
Examiner
Art Unit 2837

rdm

LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER